
Full-thickness splinted skin wound healing models in db/db and heterozygous mice: implications for wound healing impairment.

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Public Summary:

The excisional dorsal full-thickness skin wound model with or without splinting is widely utilized in wound healing studies using diabetic or normal mice. However, the effects of splinting on dermal wound healing have not been fully characterized, and there are limited data on the direct comparison of wound parameters in the splinted model between diabetic and normal mice. We compared full-thickness excisional dermal wound healing in db/db and heterozygous mice by investigating the effects of splinting, semi-occlusive dressing, and poly(ethylene glycol) treatment. Two 8-mm full-thickness wounds were made with or without splinting in db/db and heterozygous mice. Body weights, splint maintenance, wound contraction, wound closure, and histopathological parameters including reepithelialization, wound bed collagen deposition, and inflammation were compared between groups. Our results show that silicone splint application effectively reduced wound contraction in heterozygous and db/db mice. Splinted wounds, as opposed to nonsplinted wounds, exhibited no significant differences in wound closure between heterozygous and db/db mice. Finally, polyethylene glycol and the noncontact dressing had no significant effect on wound healing in heterozygous or db/db mice. We believe these findings will help investigators in selection of the appropriate wound model and data interpretation with fully defined parameters.

Scientific Abstract:

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